WPS 3244

Price Effects of Preferential Market Access: The Caribbean Basin Initiative and the Apparel Sector *

Çaglar Özden† and Gunjan Sharma ‡

February, 2004

Abstract

Preferential trade arrangements should be evaluated by analyzing their effect on prices, rather than the total value of trade, as emphasized in the theoretical literature but rarely implemented empirically. This paper analyzes the impact of the unilateral preferences granted by the U.S. Caribbean Basin Initiative (CBI) on the prices received by the eligible apparel exporters. We use fixed effects generalized least squares estimation to isolate the effects of various other factors (such as quality, exchange rates, and transactions costs) and identify the effects of tariff preferences. We find that CBI exporters only capture around two-thirds of their preference margin, despite the fairly competitive nature of the apparel market. This translates into a 9 percent increase in the relative prices they receive, but these numbers vary across countries and years. Countries specializing in higher-value items capture more of the preference margin while implementation of NAFTA has a negative effect. We analyze the effect of Multi-fibre Agreement (MFA) quotas imposed on third countries (such as China) and find that the benefits of CBI preferences will be significantly reduced once the quotas are fully removed in 2005.

*We would like to thank Alan Winters and Daniel Lederman for their detailed comments, and Bernard Hoekman, Hiau Looi Kee, Will Martin, Marcelo Olarreaga, Carlos Felipe Jaramillo, Eric Reinhardt and Jerry Thursby for their numerous suggestions. The findings, interpretations and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank, its executive directors, or the countries they represent.

†Corresponding author. World Bank and Dept of Economics, Emory University. Mailing address: International Trade Unit, World Bank Mailstop: MC3-303. 1818 H Street NW Washington, DC 20433. E-mail: cozden@worldbank.org. Phone: 202-473-5549.

‡Dept of Economics, University of Maryland. E-mail: sharma@econ.bsos.umd.edu

1 Introduction

Preferential trading arrangements have proliferated both in number and importance in recent years. Among these, reciprocal agreements, such as free trade areas, receive more attention in academic studies and policy discussions compared with unilaterally granted ones. However, enhancing unilateral market access became one of the centerpieces of the developing countries' agenda in the recent trade negotiations. Furthermore, certain unilateral programs allow eligible developing countries to have access to developed countries' markets in highly protected sectors such as agriculture and apparel. Thus, they have rather significant effects on both beneficiary and excluded countries.

This paper analyzes the impact of unilateral preferences on the prices received by the apparel exporters under the Caribbean Basin Initiative (CBI) of the United States, which consists of a series of programs first initiated in 1983. The most important feature of the CBI is the duty and quota-free market access granted to the exports of the 24 eligible countries in Central America and the Caribbean. Apparel preferences are the most valuable and heavily used preferences due to high trade barriers imposed by the United .States against the exports from the rest of the world.

The effects of discriminatory arrangements have been widely discussed and studied in the empirical literature, again, mostly in the context of reciprocal agreements. The focus has generally been on the total value of trade, even tough, theoretical literature emphasizes that the prices are the more appropriate instruments to evaluate trade policies, especially preferential arrangements[1]. The key reason is the data limitations; quantity and price data are either not widely collected or not made available by most countries. Furthermore, even if these data were available, it is not easy to compare unit prices when differentiated products (such as machinery) are aggregated in the same category. In short, the availability of very detailed and disaggregated data, together with the high utilization of the preferences, makes apparel an ideal sector to study price effects of preferential arrangements.

In this paper, we answer two interrelated questions: (i) How much do the prices received by the CBI exporters increase due to preferences? (ii) What portion of the preference margin is captured by the exporters through higher prices? The prices received by the CBI exporters

[1] See Winters [1997] for a convincing argument to this effect.

naturally depend on their own tariffs and the tariffs paid by excluded countries, as well as many other market characteristics. One of our innovations is that we are able to use country, industry and year fixed effects in a GLS estimation to isolate the effects of other factors, such as quality variation, exchange rates, transactions costs and other market characteristics. Our main finding is that the CBI exporters capture around two-thirds of their preference margin and this translates into around a 9 percent increase in the relative prices they obtain. Eligibility for preferences requires compliance with Rules of Origin Requirements that entail significant administrative and production costs[2]. When these are taken into account, the net benefits are likely to be much lower. We also find that the results exhibit significant variation across eligible countries and years. More specifically, implementation of NAFTA causes a decline while specializing in higher-value items leads to an increase in the portion of the preference margin captured by the CBI countries. Finally, we are able to analyze the impact of MFA (Multifiber Agreement) quotas that are imposed on third countries such as China, India and Korea. We find that, with the removal of these quotas, as is to be completed by 2005, the benefits from CBI preferences are almost completely eliminated.

Our results have important policy implications for the future of preferential trade arrangements. Among the main goals of such programs are the integration of developing countries into the world trading system and long-term economic growth through international trade. Many unilateral preference programs fail to deliver the promised gains for a variety of reasons (see Hoekman et.al. [2003] for a review). However, CBI programs provide significant advantages compared with other programs, such as the inclusion of the apparel sector, and are considered a success based on the rapid growth of exports from the beneficiary countries. Nevertheless, the eligible exporters do not capture the full benefits of preferential access and the benefits seem to be even lower in low-value products. Thus, CBI exporters can take better advantage of the preferences by moving toward higher quality categories. Another important point is that preferential access is valuable as long as excluded countries face high trade barriers. When these barriers are lowered, as in the case of NAFTA or the removal of MFA quotas, the value of the preferences to the beneficiaries erode considerably. The recipient countries should not rely on preferences to deliver long-term rents but use them as a transition stage to an environment where trade flows are determined by comparative advantage, rather than preferential access.

[2]For example, the use of yarn and fabric from the U.S. instead of the generally cheaper inputs from third countries.

The next section reviews the literature. Section 3 presents a brief history of the CBI followed by some stylized facts that motivate the paper. In Section 4, we present an analytical model that forms the basis of the estimation and explain the data and methodology. In section 5, the main results are presented, along with how the effect of preferences on export prices varies across countries and years and is influenced by the MFA quotas. Conclusions follow.

2 Prices and Preferential Market Access

The empirical literature on the impact of trade policies, especially of preferential arrangements, on prices is not very large, as mentioned above. One of the earliest papers on price effects of trade policies was Kreinin [1961] which showed how the reductions of the MFN tariffs by the United States influenced export prices of its trading partners. With respect to price effects of discriminatory policies, the initial focus has been on voluntary export restraints (VERs). Crandall [1985] and Feenstra [1985] analyze the effect of US VERs on prices of Japanese and domestic automobiles. Feenstra [1985] is especially important since it explicitly addresses the quality issue through hedonic regressions. Dinopoulos and Kreinin [1988] take a different approach and investigate the effects of the VERs on the non-restricted European exporters' prices.

The price effects of preferential trading blocs began to receive more attention only in recent years. Winters and Chang [2000] is the first paper to analyze the effects on members' and excluded exporters' prices using Spanish entry into the EC as the case study. They find that the EC exporters' prices increased relative to non-EC exporters, as predicted. This paper is followed by Winters and Chang [2002] which focuses on Mercosur and, again, finds that the relative prices of exports from excluded countries decline. More specifically, they estimate how the tariff changes influence the prices, the tariff pass-through effect, and show that it varies considerably across trading partners. For example, Chile and Japan fully, Germany and the USA partially and Korea nominally pass through their own tariffs. The more interesting question is the effect of the declines in the tariffs faced by the member country, Argentina. On average, one-third of Argentine tariff decline is reflected on excluded countries' prices. Finally, Schiff and Chang [2003] ask the very interesting question of the effect of contestability in Mercosur. They show that, not only the presence of Argentine exporters in Brazil, but also their threat of entry, influences the prices received by

excluded countries. These papers, especially Winters and Chang [2003], are the most related to ours and we discuss them, especially their empirical methodology, in more detail in the following section on methodology.

Olarreaga and Ozden [2003] is the only paper, we believe, that studies the price effects of unilateral preferences. They analyze the apparel preferences under AGOA and show that the beneficiary countries' prices increased by only one-third of the preference margin, with the rest being captured by the importers. Then, they provide empirical evidence arguing that the market power enjoyed by the importers contributes to this division of the tariff decline. Krishna, Erzan & Tan [1994] and Krishna & Tan [1998] also find wide evidence of rent sharing between exporters and importers in the context of apparel quotas from various East Asian countries.

This paper is also related to the pass-through literature which mostly focuses on the effect of exchange rate fluctuations on the exporter and importer prices. A comprehensive review of this rather vast literature is provided in Goldberg and Knetter [1997]. The most relevant paper for us in this literature is Feenstra [1989]. He estimates the effect of tariffs as well as exchange rates on U.S. prices of Japanese cars and he finds that the long-run pass-through is identical. His estimation equation is also similar to ours and we discuss it in the methodology section.

3 History of CBI

The Caribbean Basin Initiative (CBI) is a general term used to refer to the Caribbean Basin Economic Recovery Act of 1983 (CBERA), the Caribbean Basin Economic Recovery Expansion Act of 1990 (CBERA Expansion Act), and the Caribbean Basin Trade Partnership Act of 2000 (CBTPA), collectively. In official documents, the aim of the Initiative is stated as "... to assist in the achievement of a stable political and economic climate by stimulating the development of the export potential of the region"[3]. Quota and tariff free market access granted unilaterally by the U.S. to the exports from the eligible countries is the main feature of the CBI.

CBERA was signed by President Reagan on August 5th, 1983 and covered 24 countries. Tex-

[3]The U.S.-Caribbean Trade Partnership Act of 2000, Title II- Trade Benefits for Caribbean Basin, Subtitle A, Sec. 202.

tile and apparel articles subject to textile agreements[4] were initially exempted from preferential treatment by section 231(b). In June 1986, a special access program (called the Super 807) for the "imports of textile apparel assembled in a CBI beneficiary from fabric formed and cut in the U.S." was implemented. The program granted partial duty free treatment on the domestic value added and inputs from the U.S. export processing zones rapidly appeared in the region for the production of the eligible products. Initially, a sunset provision was included (Section 218) that terminated duty free treatment on 5th August, 1990. CBERA 1990 ("the expansion act") was signed into law on August 29, 1990 and extended the initial CBERA and reduced tariffs on certain initially excluded items such as handbags and leather apparel.

Once NAFTA was implemented in 1994, Caribbean countries began to worry about the erosion of the preferences they obtained under CBERA and losing their market share to Mexico. In some ways, the Caribbean Basin Trade Partnership Act (CBTPA) was a response to these concerns and a significant leap in the scope of the CBI happened in 2000 with its signing. Section 211 specified the new regime for textiles and apparel preferences. As opposed to the previous regime which granted partial duty free treatment, CBTPA allows textile and apparel articles to enter the US without any tariffs or other restrictions as long as certain rules of origin and other requirements are satisfied. As before, these rules of origin favor the use of materials formed either in the US or the CBI countries. In short, with the CBTPA in place, CBI members have received NAFTA-like treatment without the burden of reciprocity prescribed by NAFTA.

3.1 Stylized Facts

The CBI preferences in apparel had a large impact on the aggregate volume of exports from the beneficiaries[5] which account for a steadily rising portion of the total U.S. imports during 1989-2002, the span of our data. In 1989, exports from CBI countries totaled $1.7 billion which was 7.8% of total U.S. imports. In 2002, their total exports had increased to $9.5 billion, 16.2% of total US

[4] Such as the Multi-Fibre Agreement. Other excluded items were footwear, handbags, luggage, flat goods, work gloves and leather articles.

[5] Some countries are more successful in taking advantage of the preferences and increasing their exports. 14 of the 24 eligible countries exported apparel products into the US but 8 exporters (Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua) account for more than 99% of the total imports.

imports. Graphs 1a and 1b present the volume of total US imports, CBI exports to the US and their market share over the years.

As stated earlier, our main focus is on the prices received by the exporters due to the preferences. Graph 2a presents the average unit prices of all US imports and the exports from CBI countries weighted by CBI export volumes. The first observation is that the average price of US imports peaks in 1991 at $83 and decline rapidly to $52 in 2002. We should note that these are nominal prices so the decline in real prices is even steeper. The second observation is that the average prices of CBI exports are always below the average US import prices, probably due to quality and other differences. However, the gap narrows considerably over time. This pattern is more clearly observed in the next graph where we present the ratio of average prices of CBI exports to average prices of US imports. The price ratio starts at 84% in 1989 increases to 90% in 1993 around when NAFTA goes into effect. It stays quite stable around 90% level until CBTPA is implemented and reaches 92% in 2002.

The preferential tariffs received by the CBI beneficiaries and the average MFN tariff imposed by the US (again weighted by the CBI export volume in each category) are presented in Graph 3a. The MFN tariffs exhibit a gradual decline from 20.6% to 18%. On the other hand, the average tariffs paid by the CBI beneficiaries decline rapidly from 20.7% in 1989 to 9% in 1993 and stay stable until CBTPA is implemented. The preferential tariffs decline further to 5% in 2002. In other words, in 2002, the CBI countries enjoy an average preference margin of around 13%. Graph 3b presents the preference margins received by the CBI countries between 1989 and 2002.

The graphs above show that the relative prices of exports from the beneficiary countries and the preference margins they enjoyed have increased simultaneously from 1989 to 2002, indicating a strong correlation. However, the price increases might be caused by many factors, such as quality upgrading by exporting firms, declines in transportation and other transaction costs, exchange rate fluctuations as well as declines in tariffs. The key question is whether (and what portion of) this export price increase is due to preferential market access through the CBI. A related question is what portion of the preference margin is captured by the exporters through higher prices. The next sections provide an analytical and empirical framework to investigate the preliminary evidence presented in these graphs.

4 Analytical Framework

The previous section showed that a group of eligible countries increased their exports to the United States considerably and obtained relatively higher prices for their exports after the implementation of the CBERA and the CBTPA provisions on apparel. The key issue is the extent of the export price change due to the preferential access.

We first present our estimation equation based on the examples in the literature. Let m_k^i denote the price of product k from country i inclusive of tariffs and transport costs. Similarly, let m_k^{ROW} denote the final average import price if k was imported from the rest of the world. Based on these definitions, a typical estimating equation in the pass-through literature would take the following form (see Goldberg and Knetter [1997]):

$$\ln m_{kt}^i = \alpha_0 + \alpha_1 \tau_{kt}^i + \alpha_2 \ln m_{kt}^{ROW} + \alpha_3 \ln w_t^i + \alpha_4 \ln e_t^i + u_t \tag{1}$$

where t is the time subscript and τ is the tariff rate. This equation implies that m_k^i, the tariff-inclusive price of imports from i, would depend on prices of imports from other countries (or the domestic price index in that category), the tariff rate, the wages w (the proxy for costs which is most of the time excluded) and the exchange rate e of country i. The main coefficients of interest would be α_1 and α_4 which are, respectively, the tariff and exchange rate pass-through coefficients. If there is perfect pass-through, then we would have both coefficients equal to 1 and the prices would perfectly reflect changes in tariffs and exchange rates. Other control variables and fixed effects are included depending on the study.

Winters and Chang [2000] derive a similar equation based on an imperfect competition model to analyze the effect of Spain's accession to the EU on the prices of *excluded* countries' (such as the U.S.) exports to Spain. However, they estimate a relative price equation of the following form:

$$\ln \left(m_t^i / m_t^{ROW} \right) = \alpha_0 + \alpha_1 \tau_t^i + \alpha_2 \tau_t^{ROW} + \alpha_3 \ln z_t^i + \alpha_4 \ln z_t^{ROW} + \alpha_5 \ln Y_t + \alpha_6 P_t + u_t \tag{2}$$

where we suppress the product subscript k for simplicity. m^i and m^{ROW} are prices and τ^i and τ^{ROW} are tariffs as defined above. z^i and z^{ROW} represent the costs of exporters from i and ROW respectively. These are defined as $z^i = w^i \tau^i / e^i$ where w is wages and e is exchange rate of i. Y and

P are the income and price level in Spain used to capture demand conditions. Winters and Chang [2000] are interested in the value of the coefficients α_1 through α_4 as well as certain restrictions implied by theory. Their results imply that a 1% decline in the tariffs faced by i (EU countries) causes a 0.56% decline in the relative prices of US exporters to Spain. They estimate a similar equation for Mercosur in Winters and Chang [2002] in which the dependent variable is the ratio of US (excluded country) exports' prices in Brazil and the rest of the world.

As opposed to these studies, our focus is on the prices received by the exporters, net of tariffs and other transactions costs that are included in m_k^i and m_k^{ROW}. Let p_k^i (p_k^{ROW}) denote the *pre-tariff prices received* by exporters of k from i (ROW). t_k^i represent the preferential tariff imposed on i and t_k^{ROW} is the MFN tariff rate imposed by the US on the ROW. Our estimating equation is similar to above equation (2) but the dependent variable is the ratio of pre-tariff prices:

$$\ln\left(p_{kt}^i/p_{kt}^{ROW}\right) = \beta_0+\beta_1\left(t_{kt}^{ROW}-t_{kt}^i\right)+\beta_2 X_{kt}^i+\beta_3 M_{kt}^{ROW}+\sum_i \gamma^i\Omega^i+\sum_k \delta_k\Phi_k+\sum_t \theta_t\Psi_t+e_{kt}^i \quad (3)$$

$\ln\left(p_{kt}^i/p_{kt}^{ROW}\right)$ is the approximate difference (in percentage) of net prices of received by exporters from CBI and the rest of the world. $t_{kt}^{ROW}-t_{kt}^i$ is the average preference margin enjoyed by the exports of the beneficiary country i. Since the tariff imposed by the U.S. on the rest of the world, t_{kt}^{ROW}, did not vary considerably in our sample over time, we use the tariff difference in estimation rather than two separate tariffs. We also include the total export volume of country i in category k, denoted by X_{kt}^i, and total imports of the US in that category, denoted by M_{kt}^{ROW}.

We add country, product and year dummy variables, denoted Ω, Φ and Ψ, respectively[6] to capture variables that are missing from the estimation equation. Among these are exchange rates and wages that are included in the previous equations (1) and (2) as well as other variables such as differences in quality and transport cost[7] that are unrelated to the effects of preferential market access programs. As we mentioned earlier, using these dummy variables enables us to isolate all of these effects that influence prices and focus on the impact of preferential programs.

The implementation of a preference program is equivalent to a decline in the tariff rate faced

[6] We also test other specifications with country-product fixed effects etc. We identify these in more detail in the results section.

[7] We can also include quotas imposed on other exporting countries, shocks to demand in the US and supply shocks in the apparel sector.

by the beneficiaries, t_k^i. If the eligible countries capture all of the benefits of this tariff reduction (i.e. $\beta_1 = 1$), then the prices they receive on their exports should increase by the amount of the tariff decline. However, if export price increase is less than the tariff decline (i.e. $\beta_1 < 1$), then the importers are capturing a portion of the tariff rents created by the preferential market access. We should point out that the traditional tariff pass-through effect, given by α_1 in (1) and (2), can be found from our estimation. More specifically, given our definitions of the prices, we have $\alpha_1 = 1 - \beta_1$. Suppose we were to estimate that $\beta_1 = 0.25$. This implies that the pre-tariff price decreases by 0.25% (or the post-tariff price increases by 0.75%) if there is 1% tariff increase. Thus the tariff pass through rate is 75%.

4.1 Data & Methodology

The United States International Trade Commission (USITC) collects and makes available very disaggregated and detailed customs data. The data include the customs value, unit prices, duties paid in a given 8-digit category from any country for any year between 1989 and 2002[8]. The USITC data is further classified according to whether the imports entered the US under a specific preference program (such as NAFTA, CBTPA, GSP or AGOA) or no program (meaning under MFN)[9].

We use HS 8-digit level disaggregated data on customs value, quantity and duties collected from each country in our sample for the time period 1989-2002. The prices received by the exporters, denoted as p_{kt}^i, are unit prices, calculated as the ratio of customs value to number of units of category k in year t from country i. The average US import price, p_k^{ROW} is the unit prices received by exporters from the rest of the world[10]. Tariffs imposed on the exports of country i in category

[8] Data were obtained from the USITC website at http://www.dataweb.usitc.gov. The customs value data exclude insurance and freight.

[9] Until 2000, when CBTPA was implemented, the main preference scheme under the CBI was duty-free treatment on the portion of the value-added created in the beneficiary country and the inputs (fabric and yarn) imported from the US. In other words, MFN tariff was paid only on the portion of the imputs imported from third countries. However, all shipments into the US in the same 8-digit category were compiled together and listed under the MFN category. The level of tariff collected in a given 8-digit category is, therefore, an average rate of the tariff paid on individual shipments. Since we do not have shipment level data, we rely on these averages. After 2000, we have separate data for exports entering under CBTPA (where the tariff is zero) and under the old scheme (listed as MFN). The results in Table 5 indicate that the coefficients of the Tariff Difference variable are not statistically different under the two regimes.

[10] We should note the unit prices are product-specific, such as dozens of shirts or pants. They are not measured by

k in year t, denoted as t^i_{kt}, were calculated as the ratio of collected duties to customs value. In addition, MFN tariffs, t^{ROW}_k, were calculated as the ratio of collected duties to customs values from all exporters to the US excluding beneficiaries of preference programs (such as GSP, NAFTA, CBI, AGOA). Note that both MFN tariffs and US prices vary over products and years but not over the beneficiary countries.

The analysis is conducted for the 8 largest exporters of apparel to the US from the Caribbean and Central American regions, as we mentioned earlier. These are Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, and Nicaragua. Out of 24 eligible countries under the CBI, only 14 actually exported apparel to the US during 1989-2002. Our dataset of the 8 countries covers 99% of the $82.3 bn worth of apparel imports into the US from all eligible CBI countries during this period. The data has 211 8-digit categories which are grouped into 32 4-digit categories.

We should note that the product dummies are at the 4-digit level, rather than the 8-digit level[11]. Most 8-digit categories within a 4-digit category are very similar and we believe the 4-digit product dummies capture most of the effects (quality, margin effects, demand/supply shocks) we are targeting while 8-digit dummies unnecessarily reduce our degrees of freedom.

Despite the highly disaggregated data we use, it is possible that fixed effects are not enough to capture systematic differences between products. In particular, heteroskedasticity in residuals is a concern. For example,there may exist heteroskedasticity across panels i.e. the variance of the error may be different for each panel (the product k) This may be due to variation of scale in imports of different products. It could also be because of specific features of a product that systematically affect the error. To correct for heteroskedasticity, we adopt a two-step Feasible Generalized Least Squares estimation procedure. In the first step, we estimate β using OLS and this is used to calculate the residuals. These, in turn, are used to construct a consistent estimator for the variance matrix. We reweigh each of the variables by the inverse of the commodity-specific residual standard deviations from the variance matrix and estimate β_{GLS}.

The fixed effects GLS estimator allows the estimation of product, country and year-specific

weight or amount of fabric used, as this is the way some apparel data are collected and reported.

[11] 8-digit categories are extremely narrow and detailed. For example, 6105 is Men's or boys' knitted shirts while 61052020 is Men's or boys' cotton knitted shirts.

unobserved error terms as parameters while allowing the idiosyncratic component of the error to have a more general structure. Note that we can also use robust standard errors on OLS estimators. The FEGLS estimator is more efficient that the FE estimator obtained by OLS as the number of panels (i.e. the product categories) $K \to \infty, T$ fixed.

5 Estimation Results

The results of our main estimation using the full sample are reported in Table 2. As described above, we estimate equation [3] using Feasible Generalized Least Squares that gives us consistent and efficient estimates. The first column reports results with separate country, year and 4-digit product category dummy variables to capture unobserved variations in quality, transactions costs, exchange rates and other exporter, importer and market characteristics. All of the variables have very significant coefficients with the expected signs. The variable of most concern is $Tariff\ Difference$ which is the difference between the MFN tariff imposed by the US and the preferential tariff enjoyed by the CBI beneficiaries. The coefficient is 0.663 which implies that the CBI beneficiaries capture around 2/3rd of the preference margin (or the tariff rent). Another way to interpret this result is to look at the price increases received by the CBI beneficiaries. Although it varies across years, countries and products, the average preference margin in our sample in 2002 is 13%[12]. This means the exporter price increases due to preferences are around 8.5%. The other 4.5% is captured by the importers who now enjoy lower importer prices[13].

In perfectly competitive markets with homogenous goods, we would expect the exporters to capture all of this potential rent. In the main estimation equation, we included additional variables to capture market power effects which might explain why the tariff rent is being shared between the exporters and the importers. The variables are (natural log of) the total exports of country i and (natural log of) the total imports of the US in category k in year t. The coefficients of both variables are significant and indicate important market share effects. For example, 100% increase

[12] This is the preference margin after 1992 when the preferences went into effect and weighted by customs value.

[13] There are two additional costs associated with the rules of origin. First is the administrative costs of compliance and the second is the additional cost of having to use American inputs instead of possibly cheaper inputs from third countries. If the CBI beneficiary firms can not pass these costs onto the buyers, the real benefits of preferential acces are likely to be lower than the 8.5% price increase mentioned above.

in the exports of i (with constant US imports so the market share of i is also doubled) is associated with 4.2% increase in the relative export prices received. On the other hand, 100% increase in the US imports (with constant exports from i which implies halving of its market share) is associated with 2.6% decline in export prices.

The second column presents the results from a similar regression with joint country-year-product category dummies. Instead of separate dummy variables for countries, 4-digit categories and years (denoted by Ω^i, Φ_k, Ψ_t respectively) we have a single dummy variable denoted as Υ^i_{kt}.This is a much more general structure since it allows, for example, quality effects in category k to vary across years *and* countries simultaneously. The disadvantage is the need for additional dummy variables and the substantial loss in degrees of freedom[14]. However, the results are not much different. The coefficient of the $Tariff\ Difference$ is 0.642 and highly significant which again indicates that the exporters are capturing around 2/3rd of the preference margin. The market share variables continue to have significant coefficients with the same signs as before. The only difference is they are smaller which indicates that the new dummy variables are capturing some of these effects.

5.1 Variation Across Countries

The next question we address is whether the amount of tariff rent captured and the export price increases due to preferential access vary across countries. To answer, we separately estimate the main equation [3] for each country, with year and 4-digit product dummy variables. We only report the coefficient of $Tariff\ Difference$ variable in Column 1 of Table 3, though we include the market share variables in the estimation. The countries are ordered in terms of decreasing export volumes to the US in our dataset, with Dominican Republic as the largest exporter and Nicaragua as the smallest.

We have similar results for the three largest exporters; Dominican Republic, Honduras and Guatemala capture between 72-79% of the tariff rent. The similar result holds for Costa Rica, the

[14] For example, in the dataset, we have 8 countries, 14 years and 32 4-digit product categories. In the first regression, this leads to a total of 51 (7+13+31) dummy variables since one variable from each group is dropped. On the other hand, in the second estimation, we have a total of 3584 (8x14x32-1) potential variables. In the actual estimation, many of these are dropped due to collinearity, but, we still end up with 2413 dummy variables. Significantly increased computation time is an additional cost.

fifth in terms of export volume. On the other hand, El Salvador captures a much lower share of the tariff rent at 46%. When we calculate the average preference margins faced by the countries over time, we see that Dominican Republic, Honduras, El Salvador and Costa Rica have similar trade weighted averages of between 10-11.5% (after 1991) while it is only 6% for Guatemala . This implies, the average export price increases due to preferential market access are between 8.5-9.5% for Honduras, Dominican Republic and Costa Rica. On the other hand, the export price increases are around 4.5% for El Salvador (due to lower portion of the rents being captured) and Guatemala (due to lower preference margins)[15].

The other three countries (which export significantly lower volumes than the top five) exhibit different patterns. Jamaica actually has a negative and significant coefficient which is probably related to why it is the only country with declining exports to the US. On the other hand, Haiti has a coefficient that is larger but not statistically different than 1 which means it is capturing all of the preference margin of 15%. Thus, it is no surprise that Haiti had one of the fastest growth of export volume to the US in this time frame. Finally, Nicaragua has a coefficient that is not statistically different from zero implying that it receives none of its average 5.7% tariff preference rent.

What can explain the different patterns in terms of the tariff preference rents captured? It is natural that larger exporters capture a larger portion of the rent. This result also appears in Olarreaga and Ozden's [2003] analysis of AGOA preferences in apparel. The next point is about the categories in which these countries specialize. The average export unit prices for Dominican Republic, Honduras, Guatemala and Costa Rica are around $58. Furthermore, the average prices for all US imports in categories where these countries export is $63. On the other hand, the average export price for El Salvador is $37 and the average US import price in these categories is $44. These numbers imply that these four countries, when compared to El Salvador, are specializing in higher value categories and are producing higher quality products relative to average US imports in these categories. This is consistent with the results of Evans and Harrigan [2003] who emphasize the increasing importance of just-in-time manufacturing and retailing in apparel. By specializing in high-value categories where other product features (such as quality, timely delivery and production

[15] Detailed country-level data are not presented due to space limitations, but are available on request.

flexibility) become more important, these countries are able to extract better prices from the importers.

Of the three smaller exporters, Jamaica has the worst export performance with volumes declining from $500m at its peak in 1994 to $120m in 2002. The decline in export volumes and failure to capture the preference margins are naturally related. Both Haiti and Nicaragua also specialize in low price categories but they have rather different performances. The average preference margins enjoyed by Haiti are similar to those of the larger exporters while Nicaragua's margins are much lower. This difference indicates that a larger portion of Haitian exports enter tariff-free and the Haitian exporters are better at complying with rules of origin requirements and taking advantage of the preferences which requires certain level of legal and business expertise. This might be one of the causes of the relative success of Haiti and failure of Nicaragua in capturing higher prices for their exports.

5.2 Variation Across Years

The other interesting issue is the variation in the level of the preference margins captured by the exporters over the years. We estimate the main equation for each year separately starting in 1992, the year when the preferences appear in the data (see Graph 3), and use country and product category dummy variables. In Table 4, column 2 we report the coefficients of $Tariff\ Difference$ variable while total imports from the CBI beneficiaries are in column 3. As can be seen, all of the coefficients are highly statistically significant with a value of 1.05 in 1992. Then the coefficient starts to decline and reaches 0.685 in 1998. These are the years when NAFTA enters into force and Mexico becomes a significant competitor to the CBI countries. We should note that CBI beneficiaries were the only countries to have preferential access to the US market in apparel until NAFTA[16]. However, the amount of rents captured by the beneficiary countries seems to have sharply increased in 1999 and 2000 before CBTPA went into force in late 2000. Actually, for 1999 and 2000, the beneficiaries seem to be capturing all of the tariff rents since the coefficient is larger but not statistically different than 1. During 2001 and 2002, the coefficient are 0.592 and 0.815

[16] As mentioned earlier, the competition from Mexico actually led the CBI beneficiaries to extensively lobby the US government to implement CBTPA and greatly increase the CBI benefits while relaxing the rules of origin requirements.

respectively. However, the net benefit stays the same since preference margins also increase due to CBTPA (see Graph 3b). For example, the average preference margin in 2002 is 13% which means the average export price increase due to preferential access is again around 10.5%.

We also compared the original CBI regime with the new CBTPA regime and report the results in Table 5. The beneficiaries capture a higher portion of the rents in the old regime - 71% vs 64%. However, the average preference margin under the old regime is 9.5% while it is 12.6% under CBTPA. This means the average increase in export prices due to preferences is 6.7% in the old regime while it is 8.1% under CBTPA. This once more explains why the CBI countries were so keen on the implementation of CBTPA.

5.3 Impact of Quotas

The final question we address is the impact of the US apparel quotas (imposed on third countries, mainly Asian countries such as China, India, Korea etc.) on the export prices and tariff rents received by the CBI beneficiaries. Unfortunately, quota data and import data (with unit prices and preference programs) are collected under two different classification schemes. Furthermore, in most cases, a quota category covers multiple HS 8-digit categories. So it is rather difficult to merge the two datasets and we need to use indirect measures. We first compiled the list of the top 16 apparel exporters to the US who face significant quotas[17] and calculated their market share in each category in each time period in our sample. We divided the data into two sub-samples; one in which the quota countries have above median market share and one below median. We estimated the main equation [3] separately for the two sub-samples. Column 2 and 3 in Table 6 respectively report these results.

Quota countries may have low market share in a category for two reasons: The quotas might be restrictive or the exporting countries might not be competitive. For categories in which the quota countries have below median market share, the CBI beneficiaries capture almost all of the tariff rent; the coefficient of the $Tariff\ Difference$ variable is 1.009. On the other hand, when quota

[17] These are China, Turkey, India, Pakistan, Bangladesh, Sri Lanka, Thailand, Vietnam, Cambodia, Malaysia, Indonesia, Phillipines, Macao, Korea, Hong Kong, Taiwan. The others in the top 20 exporters of apparel are Mexico, Canada and CBI countries.

countries have above median market shares, CBI beneficiaries capture only 0.302 of the preference margin. If the quotas are important trade barriers, then the beneficiary of a preferential market access captures more of the tariff rent and receives higher prices.

As part of the Uruguay Round Agreements on textiles and apparel, the US agreed to phase out the MFA quotas over time. The first, second and third quota elimination (referred to as "integration" in official documents) took effect on January 1st 1995, 1998 and 2002 respectively. The most restrictive and important quotas were left for the final integration stage which is scheduled for January 1st, 2005. One way to analyze the effect of quotas is to look at the impact of their removal. We constructed a new variable called *Integration Dummy* which takes the value of 1 if the category was not integrated in stages 1 or 2 (on or before January1, 1998). Then we estimated the main equation [3] for the sample 1998-2002 with country, year and 4-digit product group fixed effects. The results are reported in Table 7.

The coefficient for the $Tariff\ Difference$ variable is 0.782 and significant which means the CBI beneficiaries capture a large portion of the preference margin through higher export prices. The coefficient of the *Integration Dummy* is 0.241 and also highly significant. This implies that the prices received by the beneficiaries are 24% higher in categories in which integration did not take place. All of these different results imply that the quotas and other non-tariff barriers imposed on a group of countries have an important effect on the prices received by other countries and especially the beneficiaries of preferential market access.

6 Conclusion

The theoretical literature emphasizes that trade policies should be evaluated by looking at their effect on prices, rather than the value of trade. However, this is rarely implemented empirically, except in the pass-through literature and recent work on regional agreements by Winters and Chang [2000, 2002] and Chang and Schiff [2001]. The data limitations are the main reason for this shortcoming. Luckily, the CBI preferences in apparel provide an ideal case. First, due to barriers imposed on excluded countries, these preferences are highly valued and utilized by the beneficiaries. Second, there is more than a decade of detailed and disaggregated unit value and quantity data.

This is one of the first papers to analyze the price effects of unilateral preferences. Using country, year and product category fixed effects, we are able to isolate the effects of other variables (such as quality changes and exchange rates etc) and focus on the effects of preferences, which has not been done as extensively in the literature. The results indicate that CBI beneficiaries capture around two-thirds of the preference margin, which causes their relative prices to increase by around 9 percent. The net benefits to exporters are likely to be lower, as they need to allow for the additional costs of compliance with the rules of origin. The rest of the benefits go to importers through lower prices. More interestingly, we see strong variation over time and across countries. For example, NAFTA has a negative effect while specializing in higher value products has a positive effect on the preference margin being captured. Furthermore, the elimination of MFA quotas is likely to significantly decrease the benefits of preferential access.

There are several implications for exporters from the beneficiary countries. First, they need to be aware that preferences do not necessarily have a positive effect on the prices they receive. Especially if they specialize in low quality/price categories, they are likely to capture only a small portion of the preference margin. Second, the price effect of preferential access is quite sensitive to the extent of the barriers imposed on the excluded countries. As these barriers are removed, the preferences are going to become less valuable. Thus, the beneficiary countries need to plan their trade policies accordingly and not rely on the preferences for long-term benefits.

There are several issues remaining. Our results indicate that the prices received by the excluded countries relative to prices of beneficiaries have declined. However, we need to know how the prices they obtain in the United States change relative to the prices in the world markets. This is especially important to identify whether such unilateral preferences harm the excluded countries. The effect of preferences on quality upgrading which is a widely touted claim of the policymakers, is another area that has not been explored empirically.

7 Figures

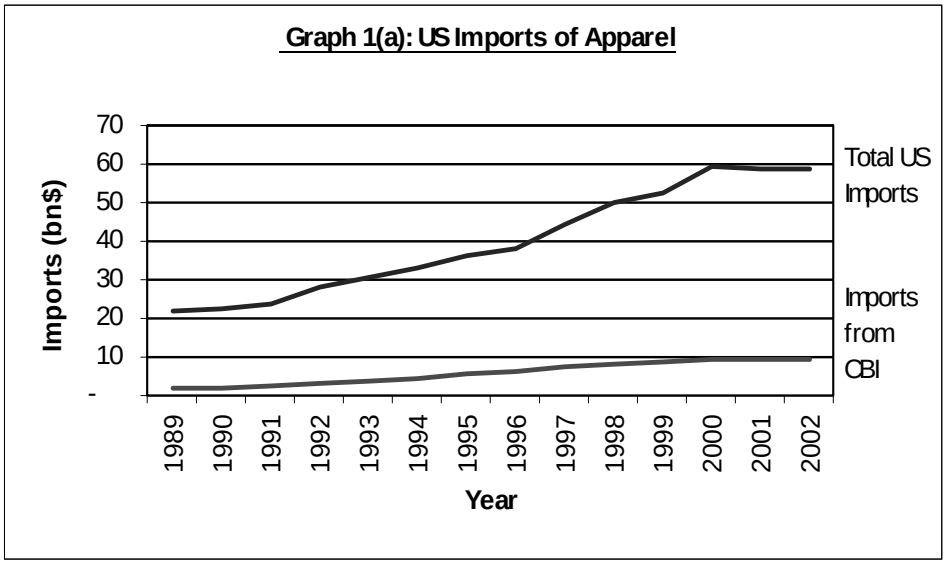

Figure 1:

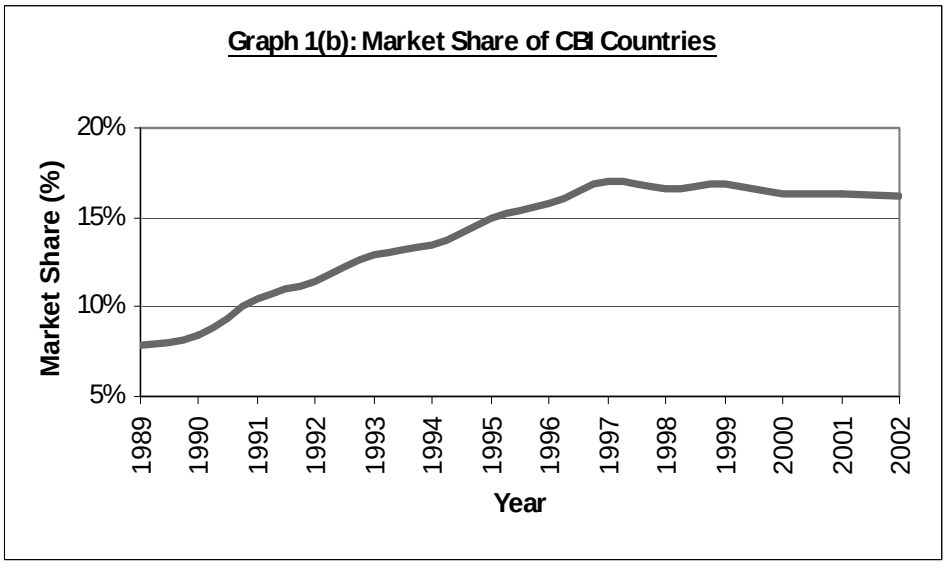

Figure 2:

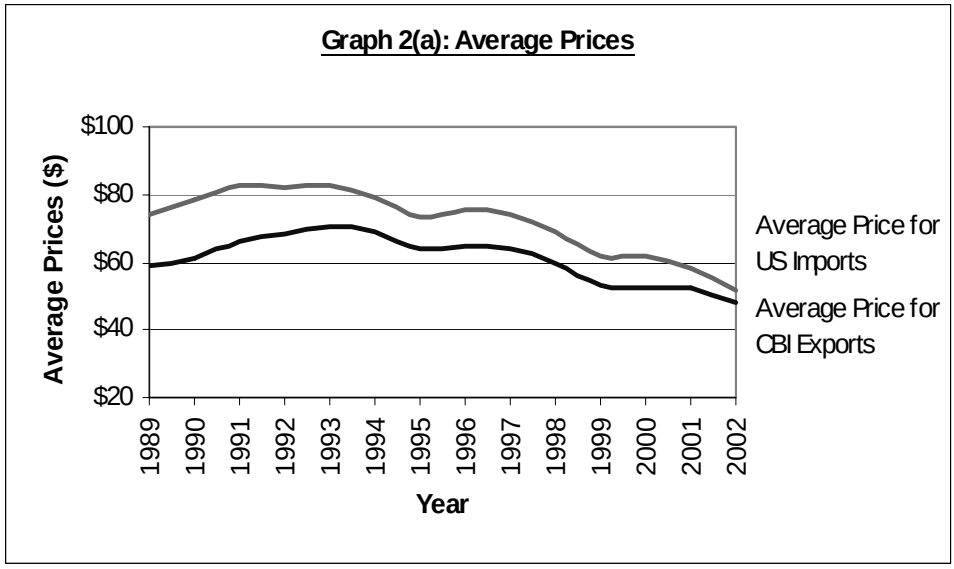

Figure 3:

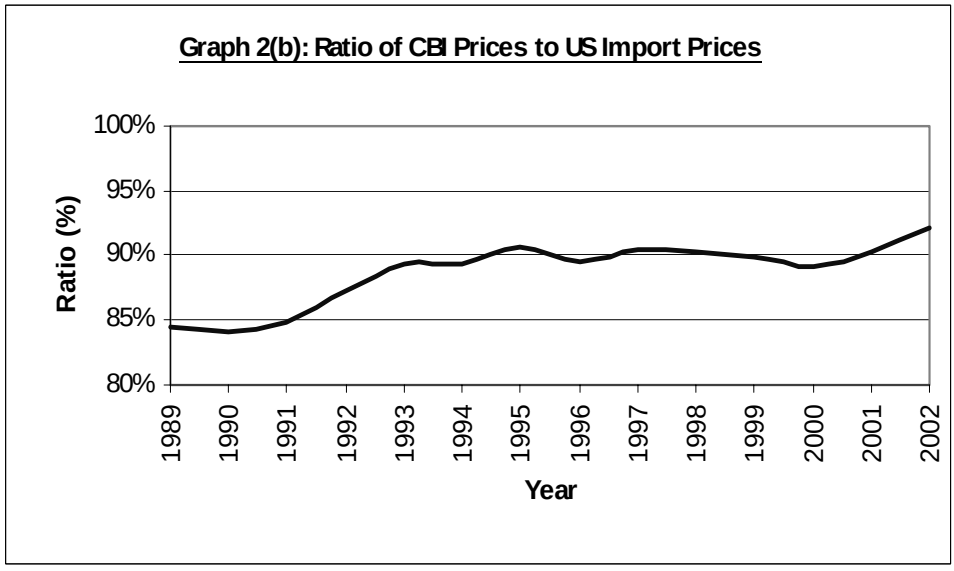

Figure 4:

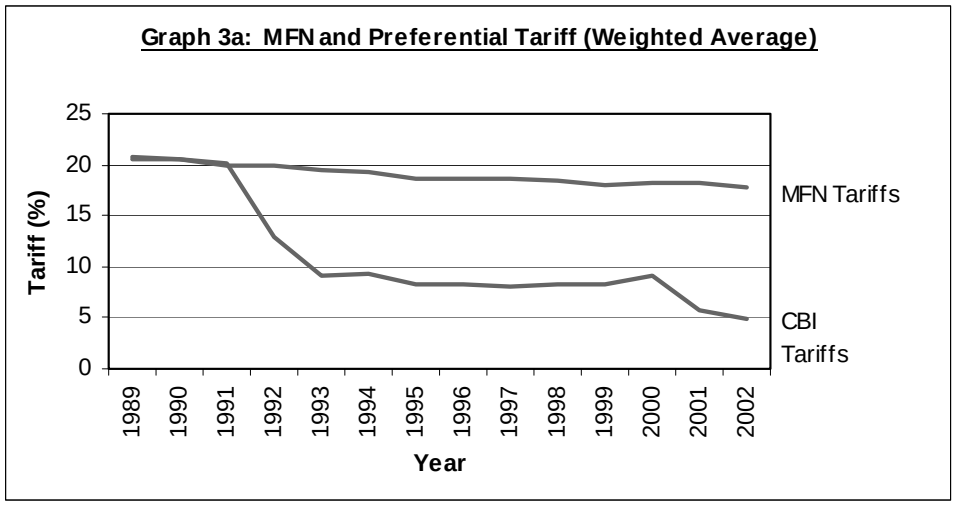

Figure 5:

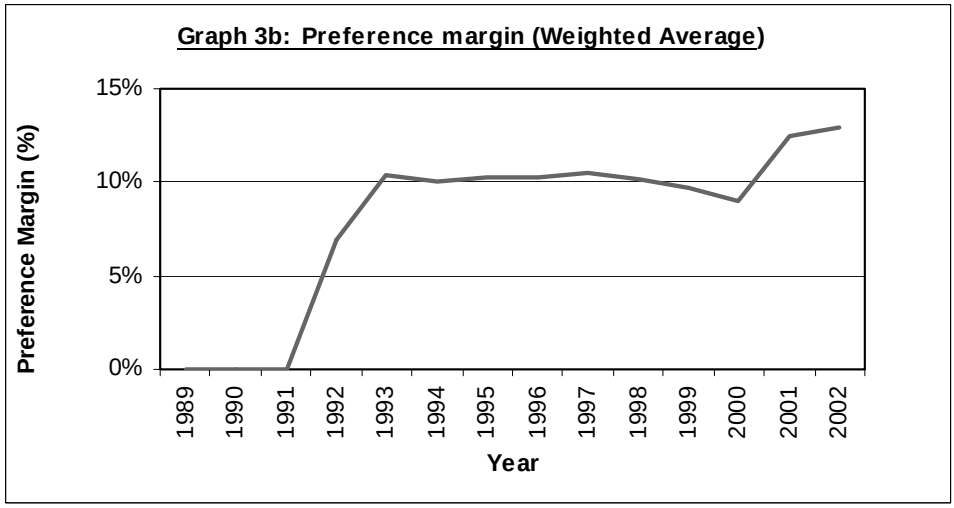

Figure 6:

8 Tables

Table 1. Sample Statistics		
	Mean	St. Dev.
Price Ratio (CBI Price/US Price)	91.28	95.96
Tariff Difference (%) (post 1991)	9.72	7.59
Export Value (mn$)	10.02	32.34
Total US Imports (mn$)	193.91	496.76
Number of countries	8	
Number of Years	14	
Number of 8-digit product categories	211	
Number of 4-digit product categories	32	
Number of Observations	7784	

Table 2: Effect of Preference Margin on the Caribbean Prices		
Dependent Variable	Ratio of Car. Price to Average US Price	
Model:	All Observations	Quality Controlled
Tariff Difference	0.663**	0.642**
	(0.056)	(0.062)
Log of Export Value	0.042**	0.026**
	(0.003)	(0.004)
Log of Total US imports	−0.026**	−0.019**
	(0.004)	(0.005)
Constant	−0.010	0.362
	(0.072)	(0.354)
Product Group fixed Effects	Yes	–
Country Fixed Effects	Yes	–
Year Fixed Effects	Yes	–
Country-Year-Product Fixed Effects	–	Yes
Observations	7784	7784
χ^2	4585.31**	10332.94**

** Statistically significant at the 1% level. Standard errors in parentheses. First column includes separate product group, country, year fixed effects while the second column has a combined dummy variable.

Table 3: Countries 1992-2002			
Dependent Variable	Ratio of Car. Price to Average US Price		
	Tariff Difference	Total Imports ($ millions)	Observations
Dominican Rep.	0.794** (0.110)	23,250	817
Honduras	0.729** (0.117)	17,226	938
Guatemala	0.719** (0.117)	11,814	1260
El Salvador	0.458** (0.127)	10,764	1126
Costa Rica	0.750** (0.171)	9,297	817
Jamaica	−0.692** (0.232)	4,686	411
Haiti	1.315** (0.217)	2,193	533
Nicaragua	0.098 (0.224)	2,101	220
Product Fixed Effects	*Yes*		
Country Fixed Effects	–		
Year Fixed Effects	*Yes*		

** Statistically significant at the 1% level. Standard errors in parentheses. Each estimation includes separate product group, year fixed effects and has χ^2 statistic significant at the 1% level.

Table 4: Year effects			
Dep. Var.	Ratio of Car. Price to Average US Price		
	Tariff Difference	Total Imports ($ millions)	Observations
1992	1.052** (0.289)	3,084	458
1993	0.787** (0.207)	3,808	502
1994	0.812** (0.198)	4,367	527
1995	0.686** (0.192)	5,322	596
1996	0.728** (0.173)	5,927	629
1997	0.658** (0.182)	7,529	661
1998	0.685** (0.192)	8,219	673
1999	1.183** (0.203)	8,765	659
2000	1.287** (0.202)	9,570	661
2001	0.592** (0.156)	9,486	650
2002	0.815** (0.163)	9,474	628
Product Fixed Effects	*Yes*		
Country Fixed Effects	*Yes*		

** Statistically significant at the 1% level. Standard errors in parentheses. Each estimation includes separate product group, country fixed effects and has χ^2 significant at the 1% level.

Table 5: Effect of the Caribbean Basin Initiative		
Dependent Variable	Ratio of Car. Price to Average US Price	
Time Period	1992-2000 (CBI)	2001-02 (CBTPA)
Tariff Difference	0.709**	0.642**
	(0.071)	(0.166)
Log of Export Value	0.036**	0.034**
	(0.004)	(0.008)
Log of Total US Imports	−0.019**	−0.009
	(0.005)	(0.012)
Constant	−0.014	−0.383
	(0.084)	(0.259)
Product Group fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	3890	986
χ^2	2441.53**	1432.12**

** Statistically significant at the 1% level. Standard errors in parentheses. Each estimation includes separate product group, year, country fixed effects.

Table 6: Effect of Quotas		
Dependent Variable	Ratio of Car. Price to Average US Price	
Model:	Below Median Quota Share	Above Median Quota Share
Tariff Difference	1.009**	0.302**
	(0.078)	(0.078)
Log of Export Value	0.047**	0.053**
	(0.005)	(0.005)
Log of Total US Imports	−0.017**	−0.060**
	(0.005)	(0.009)
Constant	−0.272**	0.298
	(0.092)	(0.154)
Product Group Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	3883	3901
χ^2	2166.10**	3585.06**

** Statistically significant at the 1% level. Standard errors in parentheses. Each estimation includes separate product group, year, country fixed effects.

Table 7: Effect of Removal of Quotas	
Dependent Variable	Ratio of Car. Price to Average US Price
	1998-2002
Tariff Difference	0.782^{**}
	(0.096)
Log of Export Value	0.042^{**}
	(0.006)
Log of Total US Imports	-0.024^{**}
	(0.008)
Integration Dummy	0.241^{**}
	(0.039)
Constant	-0.377^{*}
	(0.149)
Product Group fixed Effects	Yes
Country Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	3883
χ^2	3712.2^{**}

** Statistically significant at the 1% level. Standard errors in parentheses. Estimation includes separate product group, year, country fixed effects.

9 Bibliography

References

[1] Dinopoulos, Elias and Mordechai E. Kreinin [1988], "Effects of the U.S.-Japan Auto VER on European Prices and U.S. Welfare," *Review of Economics and Statistics*, vol.70, p.484-91.

[2] Crandall, R. [1985], "Assessing the Impact of the Automobile Voluntary Export Restraints upon US Automobile Prices," *The Brookings Institution.*

[3] Dypski, Michael Cornell [2002], "The Caribbean Basin Initiative: An Examination of Structural Dependency, Good Neighbor Relations, and American Investment," *Journal of Transnational Law and Policy*, Volume 12(1).

[4] Evans, Carolyn and James Harrigan [2002]. "Distance, Time and Specialization," *Federal Reserve Bank of New York,* Working Paper.

[5] Feenstra , Robert C. [1989], "Automobile Prices and Protection: The U.S. Japan Trade Restraint," *Journal of Policy Modelling* vol. 7(1-2), p.49-68.

[6] Feenstra , Robert C. [1989], "Symmetric Pass-through of Tariffs and Exchange Rates under Imperfect Competition: An Empirical Test," *Journal of International Economics* vol. 27, p.25-45.

[7] Goldberg, Pinelopi Koujianou and Knetter, Michael M. [1997], "Goods Prices and Exchange Rates: What Have We Learned?," J*ournal of Economic Literature,* v35, p.1243-72.

[8] Hoekman, Bernard, Constantine Michalopoulos and L. Alan Winters [2003], "Development and More Favorable and Differential Treatment of Developing Countries," mimeo, World Bank, Washington D.C.

[9] Kreinin, Mordechai E. [1961], "Effect of Tariff Changes on the Prices and Volume of Imports," *American Economic Review,* vol. 51, p.310-324

[10] Krishna, Kala, Refik Erzan and Ling Hui Tan [1994], "Rent Sharing in the Multifiber Arrangement: Theory and Evidence from the U.S. Apparel Imports From Hong Kong," *Review of International Economics,* v.2., p.62-73

[11] Krishna, Kala and Ling Hui Tan [1998], *Rags and Riches, Implementing Apparel Quotas under the Multifiber Arrangement*, University of Michigan Press.

[12] Maingot, Anthony P. [1994], The United States and The Caribbean: Challenges of an Asymmetrical Relationship," London, Macmillan and Boulder, Westview, 1994.

[13] Olarreaga, Marcelo and Caglar Ozden [fortcoming], "AGOA and Apparel: Who Captures the Tariff Rent in the Presence of Preferential Market Access?," *World Economy.*

[14] Schiff, Maurice and Won Chang [2001], "Market Presence, Contestability, and the Terms-of-Trade Effects of Regional Integration," *Journal of International Economics,* vol.60, p.161-175.

[15] Winters, L. Alan [1997], "Regionalism and the Rest of the World: the Irrelevance of the Kemp-Wan Theorem," *Oxford Economic Papers,*vol.49, p.228-234.

[16] Winters, L. Alan and Won Chang [2000], "Regional Integration and Import Prices: An Empirical Investigation," *Journal of International Economics vol.*51, p.363-377.

[17] Winters, L. Alan and Won Chang [2002], "How Regional Blocs affect Excluded Countries: The Price Effects of MERCOSUR," *American Economic Review, vol.* 92, p.889-904.